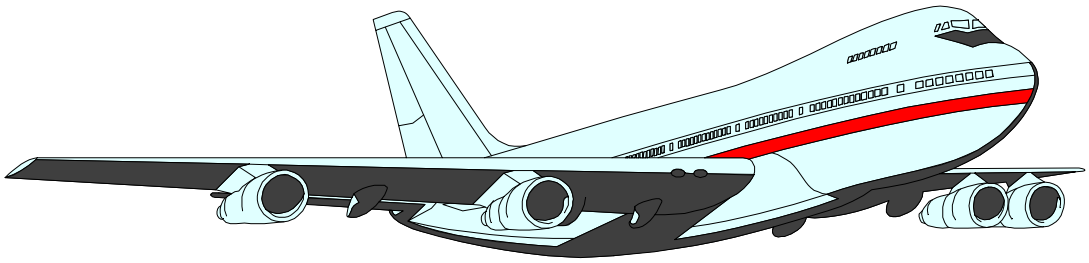
FAA-G-8082-9

FLIGHT ENGINEER KNOWLEDGE TEST GUIDE



U.S. Department of Transportation
Federal Aviation Administration

FLIGHT ENGINEER
KNOWLEDGE TEST GUIDE

1999

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Flight Standards Service

PREFACE

FAA-G-8082-9, Flight Engineer Knowledge Test Guide, provides information for obtaining authorization to take the flight engineer knowledge tests. Appendix 1 provides lists of reference materials and subject matter knowledge codes, and a list of computer testing designees (CTD's).

Changes to the subject matter knowledge codes will be published in AC 60-25, Reference Materials and Subject Matter Knowledge Codes for Airman Knowledge Testing.

The current Flight Standards Service airman training and testing material, questions banks, and subject matter knowledge codes for all airman certificates and ratings can be obtained from the Regulatory Support Division, AFS-600, home page on the Internet.

The Regulatory Support Division's Internet address is: http://www.mmac.jccbi.gov/afs/afs600

FAA-G-8082-9 supersedes Advisory Circular (AC) 63-1, Flight Engineer Knowledge Test Guide, dated 1995, and can be purchased from the Superintendent of Documents, U.S. Government Printing Office (GPO), Washington, DC 20402-9325, or from U.S. Government Bookstores located in major cities throughout the United States. For an explanation of why the Flight and Ground Instructor Knowledge Test Guide was taken out of the AC system, refer to AC 60-29, Renumbering of Airman Training and Testing Publications.

Comments regarding this guide should be sent to the Federal Aviation Administration, Airman Testing Standards Branch, AFS-630, Attn: Flight Engineer Certification Area Manager, P.O. Box 25082, Oklahoma City, OK 73125.

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FLIGHT ENGINEER KNOWLEDGE TEST GUIDE

INTRODUCTION

At one time, the flight engineer functioned as an inflight maintenance person. Today, the flight engineer is a technical expert, who must be thoroughly familiar with the operation and function of various airplane components. The principal function of the flight engineer is to assist the pilots in the operation of the airplane. Specific duties vary with different airplanes and operators.

The questions and answers on the flight engineer knowledge tests pertain only to airplanes that require a flight engineer. Because the questions and answers cover a wide scope of airplanes, powerplants, and systems, some questions are general in nature. The information contained in the questions and answers should never take precedence over specific information furnished by a manufacturer in the operation of an airplane.

KNOWLEDGE TEST ELIGIBILITY REQUIREMENTS

You are eligible to take the knowledge test, if you are at least 19 years of age and can read, speak, and understand the English language. A flight engineer applicant taking the knowledge test is not required to hold a medical certificate or receive flight training in the duties of a flight engineer.

If you possess an unrestricted commercial pilot or airline transport pilot (ATP) certificate with an instrument rating issued by the Federal Aviation Administration (FAA) or an International Civil Aviation Organization (ICAO) member nation, you may take a knowledge test without further demonstration of eligibility.

You may take the additional class rating knowledge test without further demonstration of eligibility, if you possess a flight engineer certificate or an Airman Test Report for a flight engineer original class rating.

Other means of eligibility for taking the flight engineer knowledge test are specified by Title 14 of the Code of Federal Regulations (14 CFR) part 63, section 63.37.

KNOWLEDGE AREAS ON THE TESTS

You must pass a knowledge test on the areas specified by 14 CFR part 63, section 63.35. The areas are arranged in the following order on the knowledge tests: applicable Code of Federal Regulations; theory of flight and aerodynamics; meteorology with respect to engine operations; operating procedures (preflight, normal, and emergency); airplane equipment; airplane systems; limitations (airplane procedures and engine operations); and math computations (engine operations, fuel consumption, center of gravity, and airplane loading).

DESCRIPTIONS OF THE TESTS

You must successfully complete a knowledge test appropriate to the desired rating. The minimum passing score for any of the following flight engineer knowledge tests is 70 percent. The following tests are for original class ratings and each contains 80 questions. You are allowed 3 hours to complete each test.

- ✈ Turbojet and Basic (FEX)
- ✈ Turboprop and Basic (FET)
- ✈ Reciprocating and Basic (FEN)

If you desire to add a class rating to your flight engineer certificate, you must successfully complete a knowledge test appropriate to the desired class rating. The following tests are for additional class ratings and each contains 50 questions. You are allowed 2 hours to complete each test.

- ✈ Turbojet (FEJ)
- ✈ Turboprop (FEP)
- ✈ Reciprocating (FER)

All test questions are the objective, multiple-choice type. Each question can be answered by the selection of a single response. Each test question is independent of other questions; therefore, a correct response to one does not depend upon, or influence the correct response to another.

Communication between individuals through the use of words is a complicated process. In addition to being an exercise in the application and use of aeronautical knowledge, a test is also an exercise in communication since it involves the use of the written language. Since the tests involve written rather than spoken words, communication between the test writer and the person being tested may become a difficult matter if care is not exercised by both parties. Consequently, considerable effort is expended to write each question in a clear, precise manner. Make sure you carefully read the instructions given with each test, as well as the statements in each test item.

When taking a test, keep the following points in mind:

- Answer each question in accordance with the latest regulations and guidance publications.
- Read each question carefully before looking at the possible answers. You should clearly understand the problem before attempting to solve it.
- After formulating an answer, determine which choice most nearly corresponds with that answer. The answer chosen should completely resolve the problem.
- From the answers given, it may appear that there is more than one possible answer; however, there is only one answer that is correct and complete. The other answers are either incomplete, erroneous, or represent a common misconception.
- If a certain question is difficult for you, it is best to mark it for review and proceed to the next question. After you answer the less difficult questions, return to those which you marked for review and answer them. The review marking procedure will be explained to you prior to starting the test. Although the computer should alert you to unanswered questions, make sure every question has an answer recorded. This procedure will enable you to use the available time to the maximum advantage.
- When solving a calculation problem, select the answer closest to your solution. The problem has been checked with various types of calculators; therefore, if you have solved it correctly, your answer will be closer to the correct answer than any of the other choices.

PROCESS FOR TAKING A KNOWLEDGE TEST

The FAA has available hundreds of computer testing centers worldwide. These testing centers offer the full range of airman knowledge tests including military competence, instrument foreign pilot, and pilot examiner screening tests. Refer to appendix 1 of this guide for a list of computer testing designees (CTD's).

The first step in taking a knowledge test is the registration process. You may either call the central 1-800 numbers (refer to appendix 1 for 1-800 numbers) or simply use the walk-in basis. If you choose to use the 1-800 number to register, you will need to select a testing center, schedule a test date, and make financial arrangements for test payment. You may register for tests several weeks in advance, and you may cancel your appointment according to the CTD's cancellation policy. If you do not follow the CTD's cancellation policies, you could be subject to a cancellation fee.

You should determine what authorization requirements are necessary before going to the computer testing center. Your instructor or local Flight Standards District Office (FSDO) can assist you with what documentation to take to the testing facility. Testing center personnel will not begin the test until you provide the proper identification.

Before you take the actual test, you will have an option to take a sample test. The actual test is time limited; however, there should be sufficient time to complete and review your test.

Upon completion of the knowledge test, you will receive your Airman Test Report, with the testing center's embossed seal, which reflects your score.

The Airman Test Report lists the subject matter knowledge codes for questions answered incorrectly. The total number of subject matter knowledge codes shown on the Airman Test Report is not necessarily an indication of the total number of questions answered incorrectly. Appendix 1 of this guide contains a list of subject matter knowledge codes that refer to the knowledge areas. Study these knowledge areas to improve your understanding of the subject matter.

Your instructor is required to provide instruction on each of the knowledge areas listed on your Airman Test Report and to complete an endorsement of this instruction. You must present the Airman Test Report to the examiner prior to taking the practical test. During the oral portion of the practical test, the examiner is required to evaluate the noted areas of deficiency.

Should you require a duplicate Airman Test Report due to loss or destruction of the original, send a signed request accompanied by a check or money order for $1 payable to the FAA. Your request should be sent to the Federal Aviation Administration, Airmen Certification Branch, AFS-760, P.O. Box 25082, Oklahoma City, OK 73125.

USE OF TEST AIDS AND MATERIALS

Airman knowledge tests require applicants to analyze the relationship between variables needed to solve aviation problems, in addition to testing for accuracy of a mathematical calculation. The intent is that all applicants are tested on concepts rather than rote calculation ability. It is permissible to use certain calculating devices when taking airman knowledge tests, provided they are used within the following guidelines. The term "calculating devices" is interchangeable with such items as calculators, computers, or any similar devices designed for aviation-related activities.

1. Guidelines for use of test aids and materials. The applicant may use test aids and materials within the guidelines listed below, if actual test questions or answers are not revealed.

a. Applicants may use test aids, such as scales, straightedges, protractors, plotters, navigation computers, log sheets, and all models of aviation-oriented calculating devices that are directly related to the test. In addition, applicants may use any test materials provided with the test.

b. Manufacturer's permanently inscribed instructions on the front and back of such aids listed in 1(a), e.g., formulas, conversions, regulations, signals, weather data, holding pattern diagrams, frequencies, weight and balance formulas, and air traffic control procedures are permissible.

c. The test proctor may provide calculating devices to applicants and deny them use of their personal calculating devices if the applicant's device does not have a screen that indicates all memory has been erased. The test proctor must be able to determine the calculating device's erasure capability. The use of calculating devices incorporating permanent or continuous type memory circuits without erasure capability are prohibited.

d. The use of magnetic cards, magnetic tapes, modules, computer chips, or any other device upon which prewritten programs or information related to the test can be stored and retrieved are prohibited. Printouts of data will be surrendered at the completion of the test if the calculating device used incorporates this design feature.

e. The use of any booklet or manual containing instructions related to the use of the applicant's calculating device is not permitted.

f. Dictionaries are not allowed in the testing area.

g. The test proctor makes the final determination relating to test materials and personal possessions that the applicant may take into the testing area.

2. Guidelines for dyslexic applicant's use of test aids and materials. A dyslexic applicant may request approval from the local Flight Standards District Office (FSDO) to take an airman knowledge test using one of the three options listed in preferential order:

a. Option One. Use current testing facilities and procedures whenever possible.

b. Option Two. Applicants may use Franklin Speaking Wordmaster® to facilitate the testing process. The Wordmaster® is a self-contained electronic thesaurus that audibly pronounces typed in words and presents them on a display screen. It has a built-in headphone jack for private listening. The headphone feature will be used during testing to avoid disturbing others.

c. Option Three. Applicants who do not choose to use the first or second option may request a test proctor to assist in reading specific words or terms from the test questions and supplement material. In the interest of preventing compromise of the testing process, the test proctor should be someone who is non-aviation oriented. The test proctor will provide reading assistance only, with no explanation of words or terms. The Airman Testing Standards Branch, AFS-630, will assist in the selection of a test site and test proctor.

CHEATING OR OTHER UNAUTHORIZED CONDUCT

Computer testing centers must follow strict security procedures to avoid test compromise. These procedures are established by the FAA and are covered in FAA Order 8080.6, Conduct of Airman Knowledge Tests. The FAA has directed testing centers to terminate a test at any time a test proctor suspects a cheating incident has occurred. An FAA investigation will then be conducted. If the investigation determines that cheating or unauthorized conduct has occurred, then any airman certificate or rating that you hold may be revoked, and you will be prohibited to take any airman knowledge test for 1 year.

VALIDITY OF AIRMAN TEST REPORTS

Airman Test Reports are valid for the 24-calendar month period preceding the month you complete the practical test. The validity period may be extended when application is made to take the oral and flight tests, if the following requirements are met.

1. Air Carrier Employees. The following criteria apply to flight crewmembers and mechanics employed by a 14 CFR part 121 or 14 CFR part 135 air carrier. Employment by a 14 CFR part 135 on-demand operator does not qualify an applicant for an extension:

a. Applicants who are flight crewmembers must have completed initial new-hire training, initial equipment training, or transition training.

b. Applicants who are flight crewmembers must be participating in a training program which includes a recurrent training curriculum in accordance with 14 CFR part 121 or 14 CFR part 135.

c. Applicants who are mechanics must meet the currency requirements of 14 CFR part 65.

d. Applicants must be currently employed by a 14 CFR part 121 or a 14 CFR part 135 air carrier. However, applicants do not need to have been continuously employed by a qualified air carrier between the time they passed the knowledge test and the time they apply to take the oral and flight tests.

2. Military Applicants. The following criteria apply to military applicants who apply for extensions on the basis of participation in a training program of a scheduled military transport service:

a. Applicants must have participated in a flight engineer or maintenance training program at the time of passing the knowledge test or begun a flight engineer or maintenance training program within 24-calendar months after passing the knowledge test.

b. Applicants must be currently participating in a military flight engineer or maintenance training program.

3. Continued Eligibility Documentation. Inspectors and examiners will not accept an expired Airman Test Report unless the applicant provides written evidence of continued eligibility. When satisfactory evidence is presented, the inspector or examiner will enter, date, and sign the following statement on the test report: "The period of validity of this form has been extended in accordance with the provisions of 14 CFR part 63, section 63.35(d)."

RETESTING PROCEDURES

If you receive a grade lower than 70 percent and wish to retest, you must present the following to testing center personnel.

- failed Airman Test Report; and
- a written endorsement from an authorized instructor certifying that additional instruction has been given, and the instructor finds you competent to pass the test.

If you decide to retake the test in anticipation of a better score, you may retake the test after 30-days from the date your last test was taken. The FAA will not allow you to retake a passed test before the

30-day period has lapsed. Prior to retesting, you must give your current Airman Test Report to the test administrator. The last test taken will reflect the official score.

ELIGIBILITY REQUIREMENTS FOR THE ORAL AND FLIGHT TESTS

The minimum age for the oral and flight tests is 19; however, to obtain a flight engineer certificate, the minimum age is 21. If you are less than 21 years of age and have successfully completed the oral and flight tests, you will be issued a letter of aeronautical competency. The letter will state that you have met all the requirements for a flight engineer certificate except for age.

When you present proof of reaching age 21, and a second-class medical certificate or better, the letter of aeronautical competency may be exchanged for a temporary airman certificate at any Flight Standards District Office (FSDO). The applicant must present a completed FAA Form 8400-3, Application for an Airman Certificate and/or Rating, including an authorized instructor's recommendation in box 7 of the form.

A current second-class medical certificate or better is required for taking the oral and flight tests.

Applicants must present a valid Airman Test Report.

The flight training must be completed in the airplane type which will be used for the tests. The minimum amount of flight training time is 5 hours for applicants qualifying under the provisions of 14 CFR part 63, section 63.37(b) subparagraphs (1), (2), (3), (4) and (7). Applicants who qualify under the provisions of section 63.37(b) subparagraph (7) and hold a commercial pilot certificate or higher with an instrument rating may complete all their flight training in a simulator. There is no minimum amount of flight training time specified for applicants qualifying under the provisions of section 63.37(b) subparagraphs (5) and (6).

The applicant must present an authorized instructor's recommendation and verification of the instructor's eligibility to provide the endorsement, if retesting within 30 days after failing the oral or flight test.

For an additional class rating, the applicant must present his or her flight engineer certificate.

Note: For additional guidance, see FAA-S-8081-21, Flight Engineer Practical Test Standard for Reciprocating Engine, Turbopropeller, and Turbojet Powered Aircraft.

SAMPLE TEST QUESTIONS AND ANSWERS

1. What is the air carrier requirement for preflighting the flight engineer's oxygen equipment?

A—The preflight shall be completed by the flight engineer before each flight.
B—The preflight may be completed by any flight crewmember before each flight.
C—The preflight must be completed by the flight engineer for the first flight of the day only.

Answer A—Subject Matter Knowledge Code: D11. 14 CFR part 121, section 121.337c(1). Before each flight, each item of PBE at flight crewmember duty stations must be checked by the flight crewmember who will use the equipment.

2. The point on an airfoil through which lift acts is the

A—CG.
B—center of pressure.
C—midpoint of the chord.

Answer B—Subject Matter Knowledge Code: T33. The center of pressure is the point at which the chord of an airfoil section intersects the line of action of the resultant aerodynamic forces of lift and drag about which the pressures balance.

3. Which factor has the effect of increasing V_1 speed?

A—Dry cold air.
B—High takeoff gross weight.
C—Slush or standing water on the runway.

Answer B—Subject Matter KnowledgeCode: W12. Takeoff performance is affected by gross weight, thrust on the airplane, temperature, pressure altitude, wind direction and velocity, runway slope, and runway surface.

Adjustments to V_1 are made for temperature, gross weight, pressure altitude, and flap setting. Some airplane performance tables make a small correction for strong winds. High gross weight, pressure altitude, or temperature will all increase V_1 speed. Slush or water on the runway reduces the stopping performance of the airplane and an aborted takeoff must be started at a lower speed.

4. What does declaring minimum fuel to ATC imply?

A—Traffic priority is needed to the destination airport.
B—Emergency handling is required to the nearest usable airport.
C—An emergency situation is possible should an undue delay occur.

Answer C—Subject Matter Knowledge Code: J19. Declaring minimum fuel to ATC indicates that upon reaching the destination that an emergency situation is possible should any undue delay occur. The airplane will not receive traffic priority unless an emergency is declared. If the remaining usable fuel supply is such that no delay can be taken, ATC should be notified immediately by declaring an emergency due to low fuel and stating the minutes of fuel remaining.

5. Which position should be selected on the diluter-demand oxygen regulator if there is smoke in the cockpit?

A—Normal.
B—Emergency.
C—100 percent.

Answer C—Subject Matter Knowledge Code: S69. Setting the oxygen selector lever to 100 percent closes the outside air passage to the regulator. The outside air passage dilutes the oxygen supplied to the mask with air from the cabin and is open at low altitudes. When the airplane climbs, the passage begins to close until it is completely closed at approximately 34,000 feet.

6. What is residual voltage?

A—Voltage produced that is not in phase with the current.
B—Voltage stored in the generator exciter output windings.
C—Voltage produced by permanent magnets which starts the ac generator output.

Answer C—Subject Matter Knowledge Code: S66. Residual voltage is the voltage of a generator with no field current flowing, and is produced by the residual magnetism of the generator. If the voltmeter indicates residual voltage, the generator is turning. If there is no voltage, the generator has been disconnected, or it has lost its residual magnetism.

7. The purpose of an aileron balance panel is to

A—assist in moving the ailerons.
B—aerodynamically prevent control surface flutter.
C—provide a balance between the forces in front of the hinge line with moments aft of the hinge line.

Answer A—Subject Matter Knowledge Code: S55. Pressure changes created by the aileron deflect a hinged panel in a compartment ahead of the aileron. Movement of the hinged panel then moves the control surface. The greater the deflection, the greater the pressure changes, and the more assistance will be provided by the hinged panel.

8. Moisture in a pneumatic system may cause

A—corrosion.
B—a variety of sounds including banging, squealing, and chattering.
C—return lines to freeze when the pressure of the air drops during actuation.

Answer A—Subject Matter Knowledge Code: T46. Moisture in a pneumatic system can cause freezing of operating units; interfere with the normal operation of valves, pumps, etc.; and cause corrosion. After the compressed air serves its purpose, it is dumped overboard.

9. Why should turbine engines normally be operated at idle for a period of time before shutdown?

A—The turbine case cools faster and may shrink down and seize the turbine blades.
B—Rapid cooling of the compressor section may cause cracking of compressor blades.
C—Temperature reduction and stabilization prevents a hot combustion chamber from igniting residual fuel.

Answer A—Subject Matter Knowledge Code: T04. The turbine case and the turbine wheels operate at approximately the same temperature when the engine is running. After shutdown, the turbine case will cool faster than the turbine wheels and may shrink down on the still-rotating turbine wheels if the engine is too hot. Under extreme conditions, the turbine blades may seize. This can be avoided if the engine is cooled at idle speed after prolonged high thrust.

10. Which flight conditions will result in the largest propeller blade angle?

A—Initial climb-out.
B—Approach to landing.
C—High-speed, high-altitude cruise flight.

Answer C—Subject Matter Knowledge Code: S18. A constant-speed propeller will attain the largest blade angle when the airplane is at high speed and high altitude. The air is less dense and the propeller requires a larger blade angle for the same amount of torque.

11. If the nosegear retracts forward on an airplane with a datum located forward of the nose, the total moments will

A—increase.
B—decrease.
C—remain the same.

Answer B—Subject Matter Knowledge Code: H14. When the landing gear swings forward, the total moments will decrease in proportion to the distance the weight is moved.

12. A cargo airplane is loaded to a maximum takeoff gross weight of 150,000 pounds. How many 150-pound boxes must be moved from Station 1200.0 to Station 700.0 to move the CG forward 3 inches?

A—3 boxes.
B—6 boxes.
C—22 boxes.

Answer B—Subject Matter Knowledge Code: H14.

Total weight ..... 150,000 lb
CG change ..... 3"
Distance weight is shifted ....1200" - 700" = 500"
Weight shifted .....150,000 x 3" ÷ 500" = 900 lb
Number of boxes..... 900 lb ÷ 150 lb = 6 boxes

APPENDIX 1

LIST OF REFERENCE MATERIALS AND SUBJECT MATTER KNOWLEDGE CODES

The publications listed in the following pages contain study material that may be used in preparing for the flight engineer computer administered knowledge tests. These publications may be purchased through U.S. Government Bookstores, or commercial aviation book and supply companies. The latest revision of the references should be requested.

The knowledge standards and subject matter knowledge codes for the flight engineer tests are derived from the following reference materials. When reviewing the results of the knowledge test, compare the subject matter knowledge code(s) on the Airman Test Report to these references.

Title 14 of the Code of Federal Regulations (14 CFR) part 1—Definitions and Abbreviations

A01 General Definitions
A02 Abbreviations and Symbols

14 CFR part 25—Airworthiness Standards: Transport Category Airplanes

A03 General
A04 Flight
A05 Structure
A06 Design and Construction
A07 Powerplant
A08 Equipment
A09 Operating Limitations and Information

14 CFR part 61—Certification: Pilots, Flight Instructors, and Ground Instructors

A20 General

14 CFR part 63—Certification: Flight Crewmembers Other Than Pilots

A30 General
A31 Flight Engineers

14 CFR part 91—General Operating and Flight Rules

B07 General
B14 Large and Turbine-Powered Multiengine Airplanes
B15 Additional Equipment and Operating Requirements for Large and Transport Category Aircraft

14 CFR part 121—Certification and Operations: Domestic, Flag, and Supplemental Air Carriers and Commercial Operators of Large Aircraft

D01 General
D07 Manual Requirements
D08 Aircraft Requirements
D09 Airplane Performance Operating Limitations
D10 Special Airworthiness Requirements
D11 Instrument and Equipment Requirements
D12 Maintenance, Preventive Maintenance, and Alterations
D13 Airman and Crewmember Requirements
D14 Training Program
D15 Crewmember Qualifications
D17 Flight Time Limitations and Rest Requirements: Domestic Air Carriers
D18 Flight Time Limitations: Flag Air Carriers
D19 Flight Time Limitations: Supplemental Air Carriers and Commercial Operators
D20 Flight Operations
D21 Dispatching and Flight Release Rules
D22 Records and Reports
D23 Crewmember Certificate: International

14 CFR part 125—Certification and Operations: Airplanes Having a Seating Capacity of 20 or More Passengers or a Maximum Payload Capacity of 6,000 Pounds or More

D30 General
D36 Maintenance

US HMR 175—Materials Transportation Bureau Hazardous Materials Regulations (HMR)

G01 General Information and Regulations
G02 Loading, Unloading, and Handling
G03 Specific Regulation Applicable According to Classification of Material

AC 91–23—Pilot's Weight and Balance Handbook

H10 Weight and Balance Control
H11 Terms and Definitions
H12 Empty Weight Center of Gravity
H13 Index and Graphic Limits
H14 Change of Weight
H16 Control of Loading—Large Aircraft

AC 00–6—Aviation Weather

I20 The Earth's Atmosphere
I21 Temperature
I22 Atmospheric Pressure and Altimetry
I23 Wind
I24 Moisture, Cloud Formation, and Precipitation
I25 Stable and Unstable Air
I26 Clouds
I27 Air Masses and Fronts
I28 Turbulence
I29 Icing
I30 Thunderstorms
I31 Common IFR Producers
I32 High Altitude Weather
I33 Arctic Weather
I34 Tropical Weather
I36 Glossary of Weather Terms

AIM—Aeronautical Information Manual

J03 Airport Lighting Aids
J04 Air Navigation and Obstruction Lighting
J05 Airport Marking Aids and Signs
J11 Service Available to Pilots
J13 Airport Operations
J15 Preflight
J23 Distress and Urgency Procedures
J25 Meteorology
J26 Altimeter Setting Procedures
J27 Wake Turbulence
J29 Potential Flight Hazards
J30 Safety, Accident, and Hazard Reports
J31 Fitness for Flight

AC 67–2—Medical Handbook for Pilots

J52 Hypoxia
J53 Hyperventilation
J55 The Ears
J56 Alcohol
J57 Drugs and Flying
J58 Carbon Monoxide
J59 Vision
J60 Night Flight
J61 Cockpit Lighting
J62 Disorientation (Vertigo)
J63 Motion Sickness
J64 Fatigue
J65 Noise
J66 Age
J67 Some Psychological Aspects of Flying
J68 The Flying Passenger

ADDITIONAL ADVISORY CIRCULARS

K01 AC 00–24, Thunderstorms
K02 AC 00–30, Rules of Thumb for Avoiding or Minimizing Encounters with Clear Air Turbulence
K03 AC 00–34, Aircraft Ground Handling and Servicing
K04 AC 00–54, Pilot Wind Shear Guide
K11 AC 20–34, Prevention of Retractable Landing Gear Failure
K12 AC 20–32, Carbon Monoxide (CO) Contamination in Aircraft—Detection and Prevention
K13 AC 20–43, Aircraft Fuel Control
K20 AC 20–103, Aircraft Engine Crankshaft Failure
K40 AC 25–4, Inertial Navigation System (INS)
L05 AC 60–22, Aeronautical Decision Making
L15 AC 61–107, Operations of Aircraft at Altitudes Above 25,000 Feet MSL and/or MACH Numbers (Mmo) Greater Than .75
L34 AC 90–48, Pilots' Role in Collision Avoidance
L50 AC 91–6, Water, Slush, and Snow on the Runway
L52 AC 91–13, Cold Weather Operation of Aircraft
L53 AC 91–14, Altimeter Setting Sources

L57 AC 91–43, Unreliable Airspeed Indications
L59 AC 91–46, Gyroscopic Instruments—Good Operating Practices
L61 AC 91–50, Importance of Transponder Operation and Altitude Reporting
L62 AC 91–51, Airplane Deice and Anti-Ice Systems
L80 AC 103–4, Hazard Associated with Sublimation of Solid Carbon Dioxide (Dry Ice) Aboard Aircraft
M01 AC 120–12, Private Carriage Versus Common Carriage of Persons or Property
M02 AC 120–27, Aircraft Weight and Balance Control
M08 AC 120–58, Pilot Guide—Large Aircraft Ground Deicing
M13 AC 121–195-1, Operational Landing Distances for Wet Runways; Transport Category Airplanes
M51 AC 20–117, Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft Icing
M52 AC 00–2, Advisory Circular Checklist

AC 65–9—Airframe and Powerplant Mechanics General Handbook

S01 Mathematics
S02 Aircraft Drawings
S03 Aircraft Weight and Balance
S04 Fuels and Fuel Systems
S05 Fluid Lines and Fittings
S06 Aircraft Hardware, Materials, and Processes
S07 Physics
S08 Basic Electricity
S09 Aircraft Generators and Motors
S10 Inspection Fundamentals
S11 Ground Handling, Safety, and Support Equipment

AC 65–12—Airframe and Powerplant Mechanics Powerplant Handbook

S12 Theory and Construction of Aircraft Engines
S13 Induction and Exhaust Systems
S14 Engine Fuel and Metering Systems
S15 Engine Ignition and Electrical Systems
S16 Engine Starting Systems
S17 Lubrication and Cooling Systems
S18 Propellers
S19 Engine Fire Protection Systems
S20 Engine Maintenance and Operation

AC 65–15—Airframe and Powerplant Mechanics Airframe Handbook

S21 Aircraft Structures
S22 Assembly and Rigging
S23 Aircraft Structural Repairs
S24 Ice and Rain Protection
S25 Hydraulic and Pneumatic Power Systems
S26 Landing Gear Systems
S27 Fire Protection Systems
S28 Aircraft Electrical Systems
S29 Aircraft Instrument Systems
S31 Cabin Atmosphere Control Systems

JSGT—A & P Technician General Textbook—Jeppeson Sanderson, Inc.

S32 Mathematics
S33 Physics
S34 Basic Electricity
S35 Electrical Generators and Motors
S36 Aircraft Drawings
S37 Weight and Balance
S38 Fluid Lines and Fittings
S39 Aircraft Hardware
S40 Corrosion and Its Control
S41 Nondestructive Inspection
S42 Ground Handling and Servicing
S43 Maintenance Forms and Records
S44 Maintenance Publications

JSPT—A & P Technician Powerplant Textbook—Jeppeson Sanderson, Inc.

S45 Reciprocating Engines
S46 Turbine Engines
S47 Engine Removal and Replacement
S48 Engine Maintenance and Operation
S49 Induction and Exhaust Systems
S50 Engine Fuel and Fuel Metering
S51 Engine Ignition and Electrical Systems
S52 Engine Lubrication and Cooling Systems
S53 Engine Fire Protection Systems
S54 Propellers

JSAT—A & P Technician Airframe Textbook—Jeppeson Sanderson, Inc.

S55 Aircraft Structures
S56 Assembly and Rigging
S57 Aircraft Fabric Covering
S58 Aircraft Painting and Finishing
S59 Aircraft Metal Structural Repair
S60 Aircraft Wood and Composite Structural Repair
S61 Aircraft Welding
S62 Ice and Rain Control Systems
S63 Hydraulic and Pneumatic Power Systems
S64 Aircraft Landing Gear Systems
S65 Fire Protection Systems
S66 Aircraft Electrical Systems
S67 Aircraft Instrument Systems
S68 Aircraft Fuel Systems
S69 Aircraft Cabin Atmosphere Control Systems

AGTP—Aircraft Gas Turbine Powerplants—Jeppeson Sanderson, Inc.

S71 Jet Propulsion Theory
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The Aircraft Gas Turbine Engine and Its Operation—United Technologies Corporation, Pratt Whitney, 1988

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1849 Old Bayshore Highway
Burlingame, CA 94010

Applicant inquiry and test registration: 1-800-947-4228
From outside the U.S. (650) 259-8550

Sylvan Prometric

1000 Lancaster Street
Baltimore, MD 21202

Applicant inquiry and test registration: 1-800-274-1900, 1-800-967-1100, or 1-800-359-3278
From outside the U.S. registrants should contact the appropriate Regional Service Center (RSC):

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Paris, France RSC	33-1-4289-3122
Dusseldorf, Germany RSC	49-2159-9233-50
Tokyo, Japan RSC	813-3269-9620
Latin America RSC	(612) 820-5200

LaserGrade Computer Testing

16209 S.E. McGillivray, Suite L
Vancouver, WA 98683

Applicant inquiry and test registration: 1-800-211-2753 or 1-800-211-2754
From outside the U.S. (360) 896-9111